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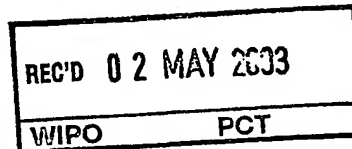
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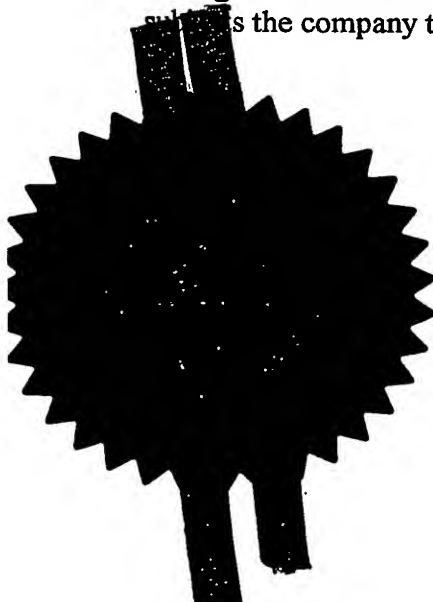
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R. Mahoney

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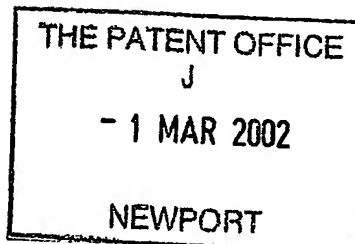
By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of

INOVAIR LIMITED
Incorporated in the United Kingdom
58 Michelham Gardens
Strawberry Hill
London
TW1 4SB
United Kingdom

[ADP No. 08387193001]

Request for grant of a patent

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SPG/P36726
2. Patent application number
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0204803.1 1 MAR 2002
3. Full name, address and postcode of the ~~of~~ ^{SECTION 30 (1977 ACT)} each applicant (underline all surnames)
Huib Maat
11 Michelham Gardens
Strawberry Hill
London
TW1 4SB
United Kingdom

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8335366001 TH 07.05.02
4. Title of the invention
Frangrance Wax and Candle Composition
5. Name of your agent (if you have one)
Harrison Goddard Foote

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)
31 St Saviourgate
YORK
YO1 8NQ

7914237002 TH

Patents ADP number (if you know it)
~~4371001~~
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| Country | Priority application number (if you know it) | Date of filing (day / month / year) |
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:
a) any applicant named in part 3 is not an inventor, or
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Continuation sheets of this form

Description 9

Claim(s) 4

Abstract

Drawing(s) 1

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Priority documents

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature

S.P. Gilholm

Date

28 February 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

S P Gilholm

01904 732120

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FRAGRANCE WAX AND CANDLE COMPOSITION

Background of the Invention

This invention generally relates to the dispensing of fragrance from an air freshener
5 candle product. More specifically this invention relates to a free-standing fragrance
candle comprising an outer fragranced shell, an inner core and wick.

A typical candle is formed of a solid, or semi-solid, body of wax such as paraffin wax
or beeswax that contains an axially embedded combustible wick. When the wick of
10 the candle is lit the heat that is generated melts the solid wax. The resulting liquid
wax rises up the wick through capillary action and is combusted. More recently
transparent and translucent candles have been developed in which the body of the
candle comprises a solvent blended with a polymeric material to form a gel. For
example United States Patent number 6,111,055 describes a gel candle composition
15 comprising an ester-terminated dimer acid-based polyamide blended with a solvent.
In this case the heat generated when the wick is lit is sufficient to melt the gel
composition, and the resulting liquid is transported to the top of the wick by capillary
action and is combusted.

20 Depending on the composition, the candle may be formed into a free-standing pillar,
or may be better suited to being placed in a container.

Candles have also been developed that incorporate a perfume base in the wax or gel
body. As the wax is melted in a lighted candle, there is a release of fragrance from
25 the molten wax pool. Furthermore, the incorporated fragrance can slowly evaporate
from the surface of the solid wax body of an unlit candle, thereby providing a low
level of fragrance to the surrounding atmosphere.

Conventional fragrance candles have drawbacks because of cost and other
30 considerations. Much of the fragrance incorporated into a conventional fragrance
candle is drawn up the wick and combusted during candle burning, leaving only a

relatively small amount of fragrance to evaporate from the molten wax pool and to freshen the surrounding atmosphere. Further, the migration of incorporated fragrance through the solid wax body of an unlit candle is relatively slow and the level of fragrance released is lower than desired. Increasing the amount of fragrance incorporated into the candle to a level sufficient to freshen the surrounding atmosphere makes the candle tacky or oily and deprives the candle of sufficient structural properties to enable it to resist damage and stand freely. Conventional fragrance candles are generally therefore protected and supported by a rigid, non-flammable container, typically made of for example glass or ceramic.

10

US Patent No. 4,568,270 describes a fragranced free standing candle which comprises an inner fragranced core comprising from 5 to 12% by weight of fragrance oil and an outer shell comprising a high melting paraffin/wax mixture. The outer core may also be fragranced and the examples, e.g. examples 16 to 30 suggest that the amount of fragrance oil in the outer shell may be from 5 to 12% by weight. However, such candles still suffer from the disadvantage that approximately 50% by weight of the fragrance oil is still present in the inner core and this may be lost by, e.g. combustion.

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Furthermore, attempts to incorporate a high fragrance loading into a wax candle may have a deleterious effect on the burn performance of the candle.

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There is therefore continuing interest in the development of improved fragrance and other types of air freshener candle products which overcome or mitigate the disadvantages of prior art candles.

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Description of the Invention

It is an object of this invention to remedy the problems of conventional fragrance candles outlined above. In particular an object of the invention is to provide a free-standing wax air freshener and/or a free standing air freshener candle product which

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releases a suitable level of fragrance into the atmosphere when unlit, and that will release an increased level of fragrance to the atmosphere when lit.

5 It is another object of this invention to provide an air freshener candle comprising a wax-like composition which has a surprisingly high content of fragrance.

Other objects and advantages of the present invention shall become apparent from the accompanying descriptions and drawings.

10 According to a first aspect of the invention we provide a wax air freshener comprising a wax with a fragrance content of greater than 15% by weight.

15 In a preferred aspect of the invention the wax air freshener may be in the form of a candle. Thus, according to a further aspect of the invention we provide a free-standing fragranced candle comprising a wax incorporating a perfume base and a wick characterised in that the fragrance content of the wax is greater than 15% by weight.

20 In a further embodiment the candle of the invention may comprise an outer shell and an inner core. Thus, for example the candle may comprise an outer shell with a fragrance content of greater than 15%. The inner core may comprise a fragrance content the same as or preferentially lower than that of the outer shell.

25 In accordance with this aspect of the invention we provide a free-standing fragranced candle comprising an outer shell incorporating a perfume base, an inner core and a wick characterised in that the fragrance content of the outer shell is greater than 15% by weight.

30 In a preferred embodiment of the invention the candle as hereinbefore described comprises an outer shell wherein the perfume base content of the outer shell is from 15 to 70% by weight.

In a further preferred embodiment of the invention the candle may comprise an outer shell having a higher melting point than the inner core.

- 5 The inner core is formed of a solid body of wax, such as paraffin wax or beeswax. Optionally the inner core may contain up to 10 weight percent of a perfume base. The inner core may be coated with between about 0.2-4.0mm of a fragranced outer shell.
- 10 Preferably, the fragranced outer shell may contain between about 30-70 weight percent of a perfume base and a carrier therefor, and is not tacky or oily at ambient temperature more preferably 40 to 60% by weight.

- 15 The unusually high concentration of perfume base in the outer shell is sufficient to ensure a suitable release of fragrance to the surrounding atmosphere when the candle is unlit. Further, concentrating the perfume base in the thin outer shell facilitates migration to the surface of the candle body. When the wick of the candle is lit the heat generated is sufficient to melt the inner core, forming a molten pool within the shell. If perfume base is incorporated in to the inner core then some will evaporate
- 20 from the molten pool to freshen the surrounding atmosphere, though much will be drawn up the wick and combusted as previously described. The perfume base incorporated in the outer shell is distant from the wick and is therefore less likely to be combusted. The heat generated by the flame and heat transfer from the molten pool is sufficient to warm the outer shell and enhance evaporation of perfume base
- 25 therefrom, thereby providing a significant release of fragrance to the surrounding atmosphere.

- Candles of this aspect of the invention, comprising an inner core and an outer fragranced shell are especially advantageous in that, *inter alia*, they provide a candle
- 30 which possess a significantly improved burn performance.

The shell is preferably formed from a mixture comprising (a) between about 30-70 weight percent of a perfume base, (b) between about 20-70 weight percent of a linear alpha olefin and (c) optionally up to 50 weight percent of a suitable solvent. More preferably the shell comprises between about 40-60 weight percent of a linear alpha olefin and between about 40-60 weight percent of a perfume base.

According to a yet further aspect of the invention we provide a candle lantern comprising a candle as hereinbefore described.

Brief Description of the Drawings

A better understanding of the objects, features and advantages of the present invention can be gained from the following detailed description of the preferred embodiments in conjunction with the appended drawings, wherein:

FIG. 1 is a plan view of an embodiment of a fragranced candle according to the invention;

FIG. 2 is a cross-sectional view taken along the line 1-1 of FIG. 1;

FIG. 3 is a plan view of a further embodiment of a fragranced candle according to the invention;

FIG. 4 is a cross-sectional view taken along the line 2-2 of FIG. 3;

Preferred Embodiments of the Invention

FIGS. 1 and 2 show a free-standing fragrance candle 10 according to the invention.

The candle 10 comprises a wick 11, an inner core 12, and an outer shell 13.

The core 12 can be produced by employing conventional candle making methods such as moulding, dipping, compressing, extruding and the like. The core 12 is formed of a material selected from the group consisting essentially of paraffin, paraffin wax, beeswax, montan wax, carnauba wax, microcrystalline wax, fatty

alcohols, fatty acids, fatty esters, natural and synthetic resins, and mixtures thereof. Optionally, but not necessarily, the core 12 can also contain perfume base.

5 The shell 13 is preferably formed from a mixture comprising (a) between about 30-70 weight percent of a perfume base, (b) between about 20-70 weight percent of a linear alpha olefin and (c) optionally up to 50 weight percent of a suitable solvent. More preferably the shell 13 comprises between about 40-60 weight percent of a linear alpha olefin and between about 40-60 weight percent of a perfume base.

10 Among the different qualities of linear alpha olefins available, particularly good results have been obtained by using LAO C30+ (origin: Aiglon S.A.).

15 As a perfume base there is used in the shell 13, and optionally in the core 12, any of the compositions currently used in perfumery. These can be discreet chemicals, more often however they are mixtures of volatile liquid and/or solid ingredients of natural or synthetic origin. The nature of these ingredients can be found in specialised books of perfumery, e.g. in S. Artander (Perfume and Flavor Chemicals, Montclair N.J., USA 1969). Suitable perfume bases are available commercially from a number of fragrance suppliers.

20

Optionally the shell 13 can be formed from a mixture of a perfume base and materials selected from the group consisting of paraffin, paraffin wax, beeswax, montan wax, carnauba wax, microcrystalline wax, fatty alcohols, fatty acids, fatty esters, natural and synthetic resins, and mixtures thereof. In such instances the
25 maximum amount of perfume base incorporated in the shell is limited to approximately 50 weight percent, as inclusion levels above this amount make the candle tacky or oily and generally disagreeable to the touch.

30 A fragrance candle according to the present invention preferably comprises a number of additional features. Thus while a plurality of wicks each equidistant from the

candle axis can be employed, it is usual for there to be a single wick 11 which extends along the candle axis.

The candle 10 can have any shape that a conventional pillar candle can have. In

5 FIGS. 1 and 2 the core 12 and shell 13 are cylindrical.

In FIGS. 3 and 4 the core 22 and shell 23 are square in a cross section taken in a plane normal to the wick 21.

10 Example 1

A core was formed using a commercially available unfragranced cylindrical pillar candle with a single wick extending along the candle axis. The core had a diameter of approximately 50mm, a height of approximately 105mm and a total mass of 172.3g.

15

A shell composition was prepared by heating 150.0g of a perfume base (lavender scent) and 100.0g of LAO C30+ (origin: Aiglon S.A.) in a sealed 500ml glass powder jar to 90°C in a water bath, whereupon the linear alpha olefin dissolved in the perfume base. The mixture was agitated until completely homogeneous and then

20 cooled to 75°C.

The core was dipped into the molten shell composition, removed and allowed to cool. This dipping and cooling process was repeated until the total mass of the candle had increased to 189.0g. The shell thus had a total mass of about 16.7g, a

25 thickness of about 1mm and contained approximately 10.0g of the perfume base.

The free standing pillar candle thus produced was not tacky or oily, and provided a suitable amount of fragrance to freshen the surrounding air when unlit.

30 Once lit the fragranced shell, being more distant from the candle flame melted more slowly than the core and formed a rim, which retained the molten pool formed as the

candle burned. The shell surrounding the molten pool was warmed to a temperature above ambient, facilitating additional release of perfume base to the surrounding atmosphere.

5 Example 2

4.0g of a perfume base (lavender scent) was mixed with 196.0g of a molten commercially available paraffin wax blend, and 150.0g of the resulting mixture poured into a cylindrical candle mould and allowed to cool to ambient temperature.

10 A fragranced core, with an axially embedded wick, was thus produced. The core had a diameter of approximately 43mm and a height of approximately 115mm.

A shell composition was prepared by heating 125.0g of a perfume base (lavender scent) and 125.0g of LAO C30+ (origin: Aiglun S.A.) in a sealed 500ml glass powder jar to 90°C in a water bath, whereupon the linear alpha olefin dissolved in the

15 perfume base. The mixture was agitated until completely homogeneous and then cooled to 75°C.

The core was dipped into the molten shell composition, removed and allowed to cool. This dipping and cooling process was repeated until the total mass of the

20 candle had increased by 14.0g. The shell had a thickness of about 1mm and contained approximately 7.0g of the perfume base.

The free standing pillar candle thus produced was not tacky or oily, and provided a

25 suitable amount of fragrance to freshen the surrounding air when unlit.

Once lit the fragranced shell, being more distant from the candle flame melted more slowly than the core and formed a rim, which retained the molten pool formed as the candle burned. The shell surrounding the molten pool was warmed to a temperature

30 above ambient, facilitating additional release of perfume base to the surrounding

atmosphere. Additional fragrance was released from the molten pool as in a conventional fragrance candle.

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CLAIMS

1. A wax air freshener comprising a wax characterised in that the fragrance content of the wax is greater than 15% by weight.

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2. A free-standing fragranced candle comprising a wax according to claim 1 and a wick.

3. A free-standing fragranced candle according to claim 2 characterised in that
10 the candle comprises an outer shell incorporating a perfume base, an inner core and a wick, wherein the fragrance content of the outer shell is greater than 15% by weight.

4. A free-standing fragranced candle according to claims 2 or 3 characterised in that the fragrance content of the outer shell is from 15 to 70% by weight.

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5. A free-standing fragranced candle according to claim 4 characterised in that the fragrance content of the outer shell is from 40 to 60% by weight.

6. A free-standing fragranced candle according to claim 5 characterised in that
20 perfume base incorporated in the shell is 50% by weight.

7. A free standing fragranced candle according to claim 3 characterised in that the outer shell has a higher melting point than the inner core.

8. A free-standing fragranced candle according to claim 3 characterised in that
25 the shell comprises a mixture of a perfume base and one or more materials selected from the group consisting of paraffin, paraffin wax, beeswax, montan wax, carnauba wax, microcrystalline wax, fatty alcohols, fatty acids, fatty esters, natural and synthetic resins, and mixtures thereof.

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9. A free-standing fragranced candle according to claim 8 characterised in that the shell comprises a linear alpha olefin or a mixture of linear alpha olefins.
10. A free-standing fragranced candle according to claim 9 characterised in that the linear alpha olefin is at least a C30 linear alpha olefin.
11. A free-standing fragranced candle according to claim 10 characterised in that the linear alpha olefin is LAO C30+ (available from: Aiglon S.A.).
12. A free-standing fragranced candle according to claim 9 characterised in that the outer shell comprises from 20 to 70 % by weight of a linear alpha olefin or a mixture of linear alpha olefins.
13. A free-standing fragranced candle according to claim 12 characterised in that the outer shell comprises from 40-60 % by weight of a linear alpha olefin or a mixture of linear alpha olefins.
14. A free-standing fragranced candle according to claim 3 characterised in that the outer shell has a thickness of from 0.2 to 4.0mm.
15. A free-standing fragranced candle according to claim 3 characterised in that the shell comprises up to 50% by weight percent of a suitable solvent.
16. A free-standing fragranced candle according to claims 2 or 3 characterised in that the perfume base is a fragranced oil.
17. A free-standing fragranced candle according to claim 3 characterised in that the shell comprises a mixture of (a) between about 30-70 weight percent of a perfume base, (b) between about 20-70 weight percent of a linear alpha olefin and (c) optionally up to 50 weight percent of a suitable solvent

18. A free-standing fragranced candle according to claim 17 characterised in that the shell 13 comprises between about 40-60 weight percent of a linear alpha olefin and between about 40-60 weight percent of a perfume base.
- 5 19. A free-standing fragranced candle according to claim 3 characterised in that the core comprises a material selected from the group consisting essentially of paraffin, paraffin wax, beeswax, montan wax, carnauba wax, microcrystalline wax, fatty alcohols, fatty acids, fatty esters, natural and synthetic resins, and mixtures thereof.
- 10 20. A free-standing fragranced candle according to claim 19 characterised in that the inner core comprises a solid body of wax.
21. A free-standing fragranced candle according to claim 20 characterised in that
- 15 the wax is paraffin wax or beeswax.
22. A free-standing fragranced candle according to claim 3 characterised in that the core contains a perfume base.
- 20 23. A free-standing fragranced candle according to claim 22 characterised in that the inner core contains up to 10% by weight of a perfume base.
24. A free-standing fragranced candle according to claim 3 characterised in that the core has a diameter of approximately 50mm.
- 25 25. A free-standing fragranced candle according to claims 2 or 3 characterised in that the candle comprises a single wick which extends along the candle axis.
26. A free-standing fragranced candle according to claims 2 or 3 characterised in
- 30 that the candle comprises a plurality of wicks each equidistant from the candle axis.

27. A free-standing fragranced candle according to claim 3 characterised in that the core comprises a conventional unfragranced candle with a single wick extending along the candle axis.

5 28. A free-standing fragranced candle according to claim 3 characterised in that the candle has an improved burn performance.

29. A candle lantern comprising a free-standing fragranced candle according to claims 2 or 3.

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30. A process for the preparation of a free-standing fragranced candle according to claim 3 characterised in that the process comprises a method selected from one or more of moulding, dipping, compressing, extruding and the like.

15 31. A process for the preparation of a free-standing fragranced candle according to claim 3 characterised in that the process comprises coating a conventional candle.

32. A fragranced candle substantially as described with reference to the accompanying examples.

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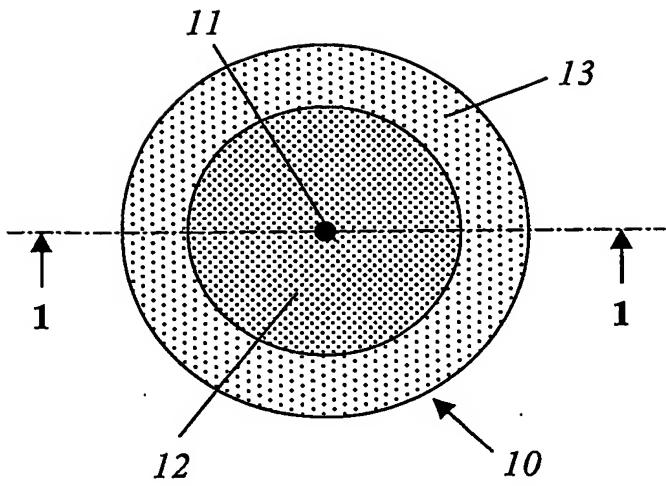


FIG. 1

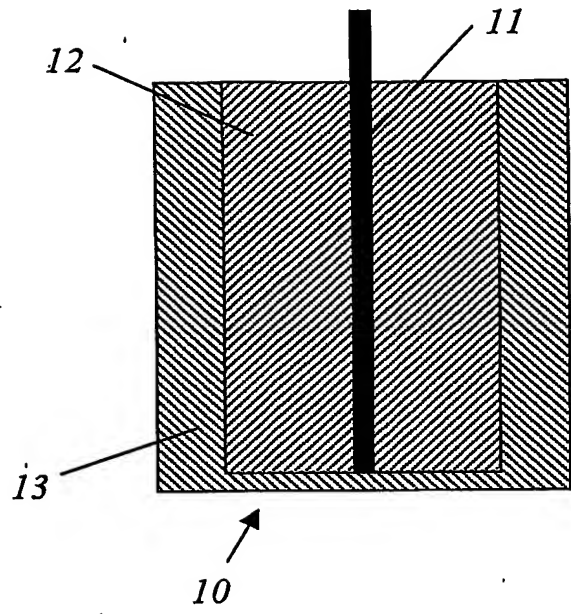


FIG. 2

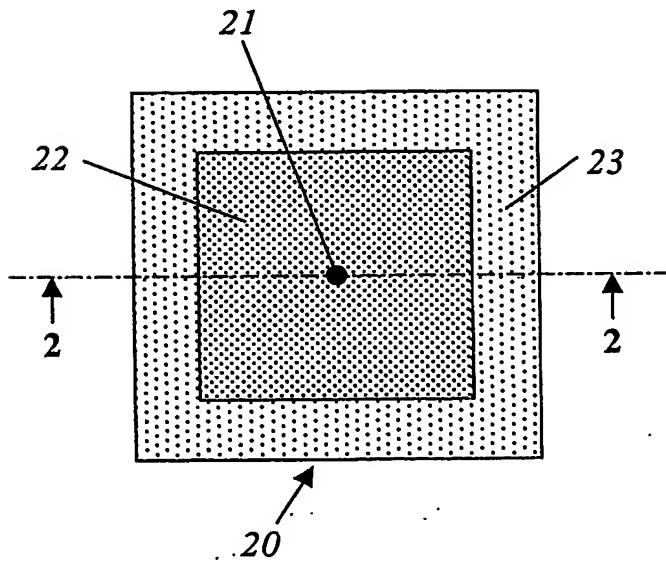


FIG. 3

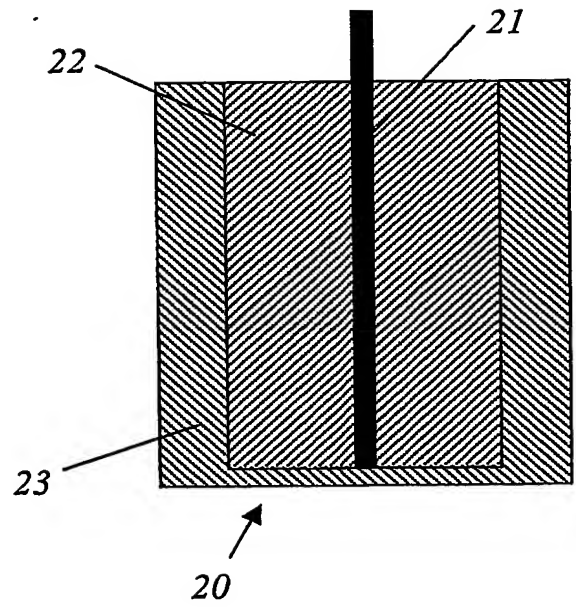


FIG. 4

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